



#5

SEQUENCE LISTING

<110> Harrison, Leonard C.
Jiang, Fang-Xu
Stanley, Edouard Guy
Gonez, Leonel Jorge

<120> Pancreatic islet cell growth factors

<130> Davies Collison Cave

<140> 09/784,911

<141> 2001-02-16

<160> 30

<170> PatentIn version 2.1

<210> 1

<211> 1260

<212> DNA

<213> mouse

<220>

<221> CDS

<222> (1)..(1260)

<220>

<221> UNSURE

<222> (186)

<223> Xaa at position 186 is Tyr or His

<400> 1

atg gcg cgc ctg atg att cct ggt aac cga atg ctg atg gtc gtt tta 48
Met Ala Arg Leu Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu
1 5 10 15

tta tgc caa gtc ctg cta gga ggc gcg agc cat gct agt ttg ata cct 96
Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
20 25 30

gag acc ggg aag aaa aaa gtc gcc gag att cag ggc cac gcg gga gga	144
Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly	
35 40 45	
cgc cgc tca ggg cag agc cat gag ctc ctg cgg gac ttc gag gcg aca	192
Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr	
50 55 60	
ctt cta cag atg ttt ggg ctg cgc cgc cgt ccg cag cct agc aag agc	240
Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser	
65 70 75 80	
gcc gtc att ccg gat tac atg agg gat ctt tac cgg ctc cag tct ggg	288
Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly	
85 90 95	
gag gag gag gag gaa gag cag agc cag gga acc ggg ctt gag tac ccg	336
Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro	
100 105 110	
gag cgt ccc gcc agc cga gcc aac act gtg agg agt ttc cat cac gaa	384
Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu	
115 120 125	
gaa cat ctg gag aac atc cca ggg acc agt gag agc tct gct ttt cgt	432
Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg	
130 135 140	
ttc ctc ttc aac ctc agc agc atc cca gaa aat gag gtg atc tcc tcg	480
Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser	
145 150 155 160	
gca gag ctc cgg ctc ttt cgg gag cag gtg gac cag ggc cct gac tgg	528
Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp	
165 170 175	
gaa cag ggc ttc cac cgt ata aac att yat gag gtt atg aag ccc cca	576
Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro	
180 185 190	

gca gaa atg gtt cct gga cac ctc atc aca cga cta ctg gac acc aga	624
Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg	
195 200 205	
cta gtc cat cac aat gtg aca cgg tgg gaa act ttc gat gtg agc cct	672
Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro	
210 215 220	
gca gtc ctt cgc tgg acc cgg gaa aag caa ccc aat tat ggg ctg gcc	720
Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala	
225 230 235 240	
att gag gtg act cac ctc cac cag aca cgg acc cac cag ggc cag cat	768
Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His	
245 250 255	
gtc aga atc agc cga tcg tta cct caa ggg agt gga gat tgg gcc caa	816
Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln	
260 265 270	
ctc cgg ccc ctc ctg gtc act ttt ggc cat gat ggc cgg ggc cat acc	864
Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr	
275 280 285	
ttg acc cgc agg agg gcc aaa cgt agt ccc aag acg cgc cag gag gag	912
Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys Thr Arg Gln Glu Glu	
290 295 300	
gaa tac atg ccc atg gag acg cgt agg aag aag aat aag aac tgc cgt	960
Glu Tyr Met Pro Met Glu Thr Arg Arg Lys Lys Asn Lys Asn Cys Arg	
305 310 315 320	
cgc cat tca cta tac gtg gac ttc agt gac gtg ggc tgg aat gat tgg	1008
Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp	
325 330 335	
att gtg gcc cca ccc ggc tac cag gcc ttc tac tgc cat ggg gac tgt	1056
Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Asp Cys	
340 345 350	
ccc ttt cca ctg gct gat cac ctc aac tca acc aac cat gcc att gtg	1104

Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Ile Val
 355 360 365

cag acc cta gtc aac tct gtt aat tct agt atc cct aag gcc tgt tgt 1152
 Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile Pro Lys Ala Cys Cys
 370 375 380

gtc ccc act gaa ctg agt gcc att tcc atg ttg tac ctg gat gag tat 1200
 Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Tyr
 385 390 395 400

gac aag gtg gtg ttg aaa aat tat cag gag atg gtg gta gag ggg tgt 1248
 Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys
 405 410 415

gga tgc cgc tga 1260
 Gly Cys Arg

<210> 2
 <211> 419
 <212> PRT
 <213> mouse

<220>
 <221> UNSURE
 <222> (186)
 <223> Xaa at position 186 is Tyr or His

<400> 2

Met Ala Arg Leu Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu
 1 5 10 15

Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
 20 25 30

Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
 35 40 45

Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
 50 55 60

Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
 65 70 75 80

Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
 85 90 95

Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro
 100 105 110

Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu
 115 120 125

Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg
 130 135 140

Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser
 145 150 155 160

Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp
 165 170 175

Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
 180 185 190

Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
 195 200 205

Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro
 210 215 220

Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala
 225 230 235 240

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
 245 250 255

Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln
 260 265 270

Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
 275 280 285

Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys Thr Arg Gln Glu Glu
 290 295 300

Glu Tyr Met Pro Met Glu Thr Arg Arg Lys Lys Asn Lys Asn Cys Arg
 305 310 315 320

Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp
 325 330 335

Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Asp Cys
 340 345 350

Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Ile Val
 355 360 365

Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile Pro Lys Ala Cys Cys
 370 375 380

Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Tyr
 385 390 395 400

Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys
 405 410 415

Gly Cys Arg

<210> 3
 <211> 1362
 <212> DNA
 <213> mouse

<220>
 <221> CDS
 <222> (1)..(1311)

<220>
 <221> UNSURE
 <222> (186)
 <223> Xaa at position 186 is Tyr or His

<400> 3
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 Met Ala Arg Leu Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu
 1 5 10 15
 tta tgc caa gtc ctg cta gga ggc gcg agc cat gct agt ttg ata cct 96
 Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
 20 25 30
 gag acc ggg aag aaa aaa gtc gcc gag att cag ggc cac gcg gga gga 144
 Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
 35 40 45
 cgc cgc tca ggg cag agc cat gag ctc ctg cgg gac ttc gag gcg aca 192
 Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
 50 55 60
 ctt cta cag atg ttt ggg ctg cgc cgc cgt ccg cag cct agc aag agc 240
 Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
 65 70 75 80
 gcc gtc att ccg gat tac atg agg gat ctt tac cgg ctc cag tct ggg 288
 Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
 85 90 95
 gag gag gag gag gaa gag cag agc cag gga acc ggg ctt gag tac ccg 336

Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro	
100 105 110	
gag cgt ccc gcc agc cga gcc aac act gtg agg agt ttc cat cac gaa	384
Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu	
115 120 125	
gaa cat ctg gag aac atc cca ggg acc agt gag agc tct gct ttt cgt	432
Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg	
130 135 140	
ttc ctc ttc aac ctc agc agc atc cca gaa aat gag gtg atc tcc tcg	480
Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser	
145 150 155 160	
gca gag ctc cgg ctc ttt cgg gag cag gtg gac cag ggc cct gac tgg	528
Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp	
165 170 175	
gaa cag ggc ttc cac cgt ata aac att yat gag gtt atg aag ccc cca	576
Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro	
180 185 190	
gca gaa atg gtt cct gga cac ctc atc aca cga cta ctg gac acc aga	624
Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg	
195 200 205	
cta gtc cat cac aat gtg aca cgg tgg gaa act ttc gat gtg agc cct	672
Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro	
210 215 220	
gca gtc ctt cgc tgg acc cgg gaa aag caa ccc aat tat ggg ctg gcc	720
Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala	
225 230 235 240	
att gag gtg act cac ctc cac cag aca cgg acc cac cag ggc cag cat	768
Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His	
245 250 255	
gtc aga atc agc cga tcg tta cct caa ggg agt gga gat tgg gcc caa	816

Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln	
260 265 270	
ctc cgg ccc ctc ctg gtc act ttt ggc cat gat ggc cgg ggc cat acc	864
Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr	
275 280 285	
ttg acc cgc agg agg gcc aaa cgt agt ccc aag acg cgc cag gag gag	912
Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys Thr Arg Gln Glu Glu	
290 295 300	
gaa tac atg ccc atg gag acg cgt acc cag tcg cag gac gtg tcc cgg	960
Glu Tyr Met Pro Met Glu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg	
305 310 315 320	
ggc tcc ggt tct tca gac tac aac ggc agt gag tta aaa aca gct tgc	1008
Gly Ser Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys	
325 330 335	
aag aag cat gag ctc tat gtg agc ttc cag gac ctg gga tgg cag gac	1056
Lys Lys His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp	
340 345 350	
tgg atc att gca ccc aaa ggc tac gct gcc aac tac tgt gat gga gag	1104
Trp Ile Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu	
355 360 365	
tgt tcc ttc cca ctc aac gca cac atg aat gcc acc aac cac gcc att	1152
Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile	
370 375 380	
gta cag acc ttg gtc cac ctt atg aat ccc gag tac gtc ccc aaa cca	1200
Val Gln Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro	
385 390 395 400	
tgc tgc gca cca acc aaa ctg aat gcc atc tcg gtt ctt tac ttc gat	1248
Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp	
405 410 415	
gat aac tcc aat gtc atc ttg aaa aag tac agg aat atg gtc gtg aga	1296

Asp Asn Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg
420 425 430

gct tgt ggt tgc cat taagttgaag ctggtgtgtg tgtgtgggtg ggggcatggt 1351
Ala Cys Gly Cys His
435

tctgccttgg a 1362

<210> 4
<211> 437
<212> PRT
<213> mouse

<220>
<221> UNSURE
<222> (186)
<223> Xaa at position 186 is Tyr or His

<400> 4

Met Ala Arg Leu Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu
1 5 10 15

Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
20 25 30

Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
35 40 45

Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
50 55 60

Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
65 70 75 80

Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
85 90 95

Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro
100 105 110

Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu
115 120 125

Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg
130 135 140

Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser
145 150 155 160

Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp
165 170 175

Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
180 185 190

Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
195 200 205

Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro
210 215 220

Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala
225 230 235 240

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
245 250 255

Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln
260 265 270

Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
275 280 285

Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys Thr Arg Gln Glu Glu
290 295 300

Glu Tyr Met Pro Met Glu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg
305 310 315 320

Gly Ser Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys
325 330 335

Lys Lys His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp
340 345 350

Trp Ile Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu
355 360 365

Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile
370 375 380

Val Gln Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro
385 390 395 400

Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp
405 410 415

Asp Asn Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg
420 425 430

Ala Cys Gly Cys His
435

<210> 5
<211> 1289
<212> DNA
<213> mouse

<220>
<221> CDS
<222> (1)..(1281)

<220>
<221> UNSURE
<222> (186)
<223> Xaa at position 186 is Tyr or His

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Met Ala Arg Leu Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu
1 5 10 15

tta tgc caa gtc ctg cta gga ggc gcg agc cat gct agt ttg ata cct 96
Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
20 25 30

gag acc ggg aag aaa aaa gtc gcc gag att cag ggc cac gcg gga gga 144
Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
35 40 45

cgc cgc tca ggg cag agc cat gag ctc ctg cgg gac ttc gag gcg aca 192
Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
50 55 60

ctt cta cag atg ttt ggg ctg cgc cgc cgt ccg cag cct agc aag agc 240
Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
65 70 75 80

gcc gtc att ccg gat tac atg agg gat ctt tac cgg ctc cag tct ggg 288

Ala	Val	Ile	Pro	Asp	Tyr	Met	Arg	Asp	Leu	Tyr	Arg	Leu	Gln	Ser	Gly		
				85					90					95			
gag	gag	gag	gag	gaa	gag	cag	agc	cag	gga	acc	ggg	ctt	gag	tac	ccg		336
Glu	Glu	Glu	Glu	Glu	Glu	Gln	Ser	Gln	Gly	Thr	Gly	Leu	Glu	Tyr	Pro		
			100					105					110				
gag	cgt	ccc	gcc	agc	cga	gcc	aac	act	gtg	agg	agt	ttc	cat	cac	gaa		384
Glu	Arg	Pro	Ala	Ser	Arg	Ala	Asn	Thr	Val	Arg	Ser	Phe	His	His	Glu		
		115					120					125					
gaa	cat	ctg	gag	aac	atc	cca	ggg	acc	agt	gag	agc	tct	gct	ttt	cgt		432
Glu	His	Leu	Glu	Asn	Ile	Pro	Gly	Thr	Ser	Glu	Ser	Ser	Ala	Phe	Arg		
		130				135					140						
ttc	ctc	ttc	aac	ctc	agc	agc	atc	cca	gaa	aat	gag	gtg	atc	tcc	tcg		480
Phe	Leu	Phe	Asn	Leu	Ser	Ser	Ile	Pro	Glu	Asn	Glu	Val	Ile	Ser	Ser		
145				150						155					160		
gca	gag	ctc	cgg	ctc	ttt	cgg	gag	cag	gtg	gac	cag	ggc	cct	gac	tgg		528
Ala	Glu	Leu	Arg	Leu	Phe	Arg	Glu	Gln	Val	Asp	Gln	Gly	Pro	Asp	Trp		
			165					170					175				
gaa	cag	ggc	ttc	cac	cgt	ata	aac	att	yat	gag	gtt	atg	aag	ccc	cca		576
Glu	Gln	Gly	Phe	His	Arg	Ile	Asn	Ile	Xaa	Glu	Val	Met	Lys	Pro	Pro		
			180					185					190				
gca	gaa	atg	gtt	cct	gga	cac	ctc	atc	aca	cga	cta	ctg	gac	acc	aga		624
Ala	Glu	Met	Val	Pro	Gly	His	Leu	Ile	Thr	Arg	Leu	Leu	Asp	Thr	Arg		
		195					200					205					
cta	gtc	cat	cac	aat	gtg	aca	cgg	tgg	gaa	act	ttc	gat	gtg	agc	cct		672
Leu	Val	His	His	Asn	Val	Thr	Arg	Trp	Glu	Thr	Phe	Asp	Val	Ser	Pro		
		210				215					220						
gca	gtc	ctt	cgc	tgg	acc	cgg	gaa	aag	caa	ccc	aat	tat	ggg	ctg	gcc		720
Ala	Val	Leu	Arg	Trp	Thr	Arg	Glu	Lys	Gln	Pro	Asn	Tyr	Gly	Leu	Ala		
225					230					235					240		
att	gag	gtg	act	cac	ctc	cac	cag	aca	cgg	acc	cac	cag	ggc	cag	cat		768

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His	
245 250 255	
gtc aga atc agc cga tcg tta cct caa ggg agt gga gat tgg gcc caa	816
Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln	
260 265 270	
ctc cgg ccc ctc ctg gtc act ttt ggc cat gat ggc cgg ggc cat acc	864
Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr	
275 280 285	
ttg acc cgc agg agg gcc aaa cgt agt ccc aag cat cac cca cag cgg	912
Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys His His Pro Gln Arg	
290 295 300	
tcc acg cgc cag gag cag aag ctt atc tcg gag gag gac ctg acg cgt	960
Ser Thr Arg Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg	
305 310 315 320	
agg aag aag aat aag aac tgc cgt cgc cat tca cta tac gtg gac ttc	1008
Arg Lys Lys Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe	
325 330 335	
agt gac gtg ggc tgg aat gat tgg att gtg gcc cca ccc ggc tac cag	1056
Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln	
340 345 350	
gcc ttc tac tgc cat ggg gac tgt ccc ttt cca ctg gct gat cac ctc	1104
Ala Phe Tyr Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu	
355 360 365	
aac tca acc aac cat gcc att gtg cag acc cta gtc aac tct gtt aat	1152
Asn Ser Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn	
370 375 380	
tct agt atc cct aag gcc tgt tgt gtc ccc act gaa ctg agt gcc att	1200
Ser Ser Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile	
385 390 395 400	
tcc atg ttg tac ctg gat gag tat gac aag gtg gtg ttg aaa aat tat	1248

Ser Met Leu Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr
405 410 415

cag gag atg gtg gta gag ggg tgt gga tgc cgc tgacgcgt 1289
Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
420 425

<210> 6
<211> 427
<212> PRT
<213> mouse

<220>
<221> UNSURE
<222> (186)
<223> Xaa at position 186 is Tyr or His

<400> 6

Met Ala Arg Leu Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu
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Leu Cys Gln Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro
20 25 30

Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly
35 40 45

Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr
50 55 60

Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser
65 70 75 80

Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly
85 90 95

Glu Glu Glu Glu Glu Glu Gln Ser Gln Gly Thr Gly Leu Glu Tyr Pro
100 105 110

Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu
115 120 125

Glu His Leu Glu Asn Ile Pro Gly Thr Ser Glu Ser Ser Ala Phe Arg
130 135 140

Phe Leu Phe Asn Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser
145 150 155 160

Ala Glu Leu Arg Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp
165 170 175

Glu Gln Gly Phe His Arg Ile Asn Ile Xaa Glu Val Met Lys Pro Pro
180 185 190

Ala Glu Met Val Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg
195 200 205

Leu Val His His Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro
210 215 220

Ala Val Leu Arg Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala
225 230 235 240

Ile Glu Val Thr His Leu His Gln Thr Arg Thr His Gln Gly Gln His
245 250 255

Val Arg Ile Ser Arg Ser Leu Pro Gln Gly Ser Gly Asp Trp Ala Gln
260 265 270

Leu Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Arg Gly His Thr
275 280 285

Leu Thr Arg Arg Arg Ala Lys Arg Ser Pro Lys His His Pro Gln Arg
290 295 300

Ser Thr Arg Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg
305 310 315 320

Arg Lys Lys Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe
325 330 335

Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln
340 345 350

Ala Phe Tyr Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu
355 360 365

Asn Ser Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn
370 375 380

Ser Ser Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile
385 390 395 400

Ser Met Leu Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr
405 410 415

Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
420 425

<210> 7
 <211> 1350
 <212> DNA
 <213> mouse

<220>
 <221> CDS
 <222> (1)..(1299)

<400> 7
 atg cac gtg cgc tcg ctg cgc gct gcg gcg cca cac agc ttc gtg gcg 48
 Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
 1 5 10 15
 ctc tgg gcg cct ctg ttc ttg ctg cgc tcc gcc ctg gcc gat ttc agc 96
 Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
 20 25 30
 ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144
 Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
 35 40 45
 cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg 192
 Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
 50 55 60
 ccc cat cgc ccg cgc ccg cac ctc cag gga aag cat aat tcg gcg ccc 240
 Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
 65 70 75 80
 atg ttc atg ttg gac ctg tac aac gcc atg gcg gtg gag gag agc ggg 288
 Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
 85 90 95
 ccg gac gga cag ggc ttc tcc tac ccc tac aag gcc gtc ttc agt acc 336
 Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
 100 105 110
 cag ggc ccc cct tta gcc agc ctg cag gac agc cac ttc ctc act gac 384
 Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
 115 120 125

gcc gac atg gtc atg agc ttc gtc aac cta gtg gaa cat gac aaa gaa	432
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu	
130 135 140	
ttc ttc cac cct cga tac cac cat cgg gag ttc cgg ttt gat ctt tcc	480
Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser	
145 150 155 160	
aag atc ccc gag ggc gaa cgg gtg acc gca gcc gaa ttc agg atc tat	528
Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr	
165 170 175	
aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca	576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr	
180 185 190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc	624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
195 200 205	
ttg ctg gac agc cgc acc atc tgg gct tct gag gag ggc tgg ttg gtg	672
Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val	
210 215 220	
ttt gat atc aca gcc acc agc aac cac tgg gtg gtc aac cct cgg cac	720
Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His	
225 230 235 240	
aac ctg ggc tta cag ctc tct gtg gag acc ctg gat ggg cag agc atc	768
Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile	
245 250 255	
aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag	816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys	
260 265 270	
caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt	864
Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg	
275 280 285	
agt atc cgg tcc acg ggg ggc acg cgc cag gag gag gaa tac atg ccc	912

Ser	Ile	Arg	Ser	Thr	Gly	Gly	Thr	Arg	Gln	Glu	Glu	Glu	Tyr	Met	Pro	
290							295					300				
atg	gag	acg	cgt	acc	cag	tcg	cag	gac	gtg	tcc	cgg	ggc	tcc	ggg	tct	960
Met	Glu	Thr	Arg	Thr	Gln	Ser	Gln	Asp	Val	Ser	Arg	Gly	Ser	Gly	Ser	
305					310				315						320	
tca	gac	tac	aac	ggc	agt	gag	tta	aaa	aca	gct	tgc	aag	aag	cat	gag	1008
Ser	Asp	Tyr	Asn	Gly	Ser	Glu	Leu	Lys	Thr	Ala	Cys	Lys	Lys	His	Glu	
				325					330					335		
ctc	tat	gtg	agc	ttc	cag	gac	ctg	gga	tgg	cag	gac	tgg	atc	att	gca	1056
Leu	Tyr	Val	Ser	Phe	Gln	Asp	Leu	Gly	Trp	Gln	Asp	Trp	Ile	Ile	Ala	
			340					345					350			
ccc	aaa	ggc	tac	gct	gcc	aac	tac	tgt	gat	gga	gag	tgt	tcc	ttc	cca	1104
Pro	Lys	Gly	Tyr	Ala	Ala	Asn	Tyr	Cys	Asp	Gly	Glu	Cys	Ser	Phe	Pro	
		355					360					365				
ctc	aac	gca	cac	atg	aat	gcc	acc	aac	cac	gcc	att	gta	cag	acc	ttg	1152
Leu	Asn	Ala	His	Met	Asn	Ala	Thr	Asn	His	Ala	Ile	Val	Gln	Thr	Leu	
	370					375					380					
gtc	cac	ctt	atg	aat	ccc	gag	tac	gtc	ccc	aaa	cca	tgc	tgc	gca	cca	1200
Val	His	Leu	Met	Asn	Pro	Glu	Tyr	Val	Pro	Lys	Pro	Cys	Cys	Ala	Pro	
385					390					395					400	
acc	aaa	ctg	aat	gcc	atc	tcg	gtt	ctt	tac	ttc	gat	gat	aac	tcc	aat	1248
Thr	Lys	Leu	Asn	Ala	Ile	Ser	Val	Leu	Tyr	Phe	Asp	Asp	Asn	Ser	Asn	
				405					410					415		
gtc	atc	ttg	aaa	aag	tac	agg	aat	atg	gtc	gtg	aga	gct	tgt	ggg	tgc	1296
Val	Ile	Leu	Lys	Lys	Tyr	Arg	Asn	Met	Val	Val	Arg	Ala	Cys	Gly	Cys	
			420					425					430			
cat	taagttgaag	ctggtgtgtg	tgtgtgggtg	ggggcatggt	tctgccttgg	a										1350
His																

<210> 8

<211> 433
<212> PRT
<213> mouse

<400> 8

Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
1 5 10 15

Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
20 25 30

Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80

Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95

Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110

Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125

Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
130 135 140

Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
145 150 155 160

Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
165 170 175

Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
180 185 190

Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
195 200 205

Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
225 230 235 240

Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
275 280 285

Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Glu Glu Tyr Met Pro
290 295 300

Met Glu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg Gly Ser Gly Ser
305 310 315 320

Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys Lys Lys His Glu
 325 330 335

Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
 340 345 350

Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser Phe Pro
 355 360 365

Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu
 370 375 380

Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys Ala Pro
 385 390 395 400

Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn Ser Asn
 405 410 415

Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
 420 425 430

His

<210> 9

<211> 1353

<212> DNA

<213> mouse

<220>

<221> CDS

<222> (1)..(1353)

atg	cac	gtg	cgc	tcg	ctg	cgc	gct	gcg	gcg	cca	cac	agc	ttc	gtg	gcg	48
Met	His	Val	Arg	Ser	Leu	Arg	Ala	Ala	Ala	Pro	His	Ser	Phe	Val	Ala	
1				5				10					15			
ctc	tgg	gcg	cct	ctg	ttc	ttg	ctg	cgc	tcc	gcc	ctg	gcc	gat	ttc	agc	96
Leu	Trp	Ala	Pro	Leu	Phe	Leu	Leu	Arg	Ser	Ala	Leu	Ala	Asp	Phe	Ser	
			20					25					30			
ctg	gac	aac	gag	gtg	cac	tcc	agc	ttc	atc	cac	cgg	cgc	ctc	cgc	agc	144
Leu	Asp	Asn	Glu	Val	His	Ser	Ser	Phe	Ile	His	Arg	Arg	Leu	Arg	Ser	
		35						40				45				
cag	gag	cgg	cgg	gag	atg	cag	cgg	gag	atc	ctg	tcc	atc	tta	ggg	ttg	192
Gln	Glu	Arg	Arg	Glu	Met	Gln	Arg	Glu	Ile	Leu	Ser	Ile	Leu	Gly	Leu	
	50					55					60					
ccc	cat	cgc	ccg	cgc	ccg	cac	ctc	cag	gga	aag	cat	aat	tcg	gcg	ccc	240
Pro	His	Arg	Pro	Arg	Pro	His	Leu	Gln	Gly	Lys	His	Asn	Ser	Ala	Pro	
65						70				75				80		
atg	ttc	atg	ttg	gac	ctg	tac	aac	gcc	atg	gcg	gtg	gag	gag	agc	ggg	288
Met	Phe	Met	Leu	Asp	Leu	Tyr	Asn	Ala	Met	Ala	Val	Glu	Glu	Ser	Gly	
				85					90					95		
ccg	gac	gga	cag	ggc	ttc	tcc	tac	ccc	tac	aag	gcc	gtc	ttc	agt	acc	336
Pro	Asp	Gly	Gln	Gly	Phe	Ser	Tyr	Pro	Tyr	Lys	Ala	Val	Phe	Ser	Thr	
			100						105				110			
cag	ggc	ccc	cct	tta	gcc	agc	ctg	cag	gac	agc	cac	ttc	ctc	act	gac	384
Gln	Gly	Pro	Pro	Leu	Ala	Ser	Leu	Gln	Asp	Ser	His	Phe	Leu	Thr	Asp	
		115						120				125				
gcc	gac	atg	gtc	atg	agc	ttc	gtc	aac	cta	gtg	gaa	cat	gac	aaa	gaa	432
Ala	Asp	Met	Val	Met	Ser	Phe	Val	Asn	Leu	Val	Glu	His	Asp	Lys	Glu	
		130					135				140					
ttc	ttc	cac	cct	cga	tac	cac	cat	cgg	gag	ttc	cgg	ttt	gat	ctt	tcc	480
Phe	Phe	His	Pro	Arg	Tyr	His	His	Arg	Glu	Phe	Arg	Phe	Asp	Leu	Ser	
145					150					155					160	

aag atc ccc gag ggc gaa cgg gtg acc gca gcc gaa ttc agg atc tat	528
Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr	
165 170 175	
aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca	576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr	
180 185 190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc	624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
195 200 205	
ttg ctg gac agc cgc acc atc tgg gct tct gag gag ggc tgg ttg gtg	672
Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val	
210 215 220	
ttt gat atc aca gcc acc agc aac cac tgg gtg gtc aac cct cgg cac	720
Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His	
225 230 235 240	
aac ctg ggc tta cag ctc tct gtg gag acc ctg gat ggg cag agc atc	768
Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile	
245 250 255	
aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag	816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys	
260 265 270	
caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt	864
Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg	
275 280 285	
agt atc cgg tcc acg ggg ggc acg cgc cag gag cag aag ctt atc tcg	912
Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser	
290 295 300	
gag gag gac ctg acg cgt acc cag tcg cag gac gtg tcc cgg ggc tcc	960
Glu Glu Asp Leu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg Gly Ser	
305 310 315 320	
ggc tct tca gac tac aac ggc agt gag tta aaa aca gct tgc aag aag	1008

Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys Lys Lys	
325 330 335	
cat gag ctc tat gtg agc ttc cag gac ctg gga tgg cag gac tgg atc	1056
His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile	
340 345 350	
att gca ccc aaa ggc tac gct gcc aac tac tgt gat gga gag tgt tcc	1104
Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser	
355 360 365	
ttc cca ctc aac gca cac atg aat gcc acc aac cac gcc att gta cag	1152
Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln	
370 375 380	
acc ttg gtc cac ctt atg aat ccc gag tac gtc ccc aaa cca tgc tgc	1200
Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys	
385 390 395 400	
gca cca acc aaa ctg aat gcc atc tcg gtt ctt tac ttc gat gat aac	1248
Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn	
405 410 415	
tcc aat gtc atc ttg aaa aag tac agg aat atg gtc gtg aga gct tgt	1296
Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys	
420 425 430	
ggc tgc cat gtt gaa gct ggt gtg tgt gtg tgg gtg ggg gca tgg ttc	1344
Gly Cys His Val Glu Ala Gly Val Cys Val Trp Val Gly Ala Trp Phe	
435 440 445	
tgc ctt gga	1353
Cys Leu Gly	
450	

<210> 10
 <211> 451
 <212> PRT
 <213> mouse

<400> 10

Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
1 5 10 15

Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
20 25 30

Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80

Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95

Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110

Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125

Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
130 135 140

Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
145 150 155 160

Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
165 170 175

Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
180 185 190

Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
195 200 205

Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
225 230 235 240

Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
275 280 285

Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser
290 295 300

Glu Glu Asp Leu Thr Arg Thr Gln Ser Gln Asp Val Ser Arg Gly Ser
305 310 315 320

Gly Ser Ser Asp Tyr Asn Gly Ser Glu Leu Lys Thr Ala Cys Lys Lys
325 330 335

His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile
340 345 350

Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser
355 360 365

Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln
370 375 380

Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys
385 390 395 400

Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn
405 410 415

Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys
420 425 430

Gly Cys His Val Glu Ala Gly Val Cys Val Trp Val Gly Ala Trp Phe
435 440 445

Cys Leu Gly
450

<210> 11
<211> 1346
<212> DNA
<213> mouse

<220>
<221> CDS
<222> (1)..(1299)

<400> 11

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Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
1 5 10 15

ctc tgg gcg cct ctg ttc ttg ctg cgc tcc gcc ctg gcc gat ttc agc 96
Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
20 25 30

ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144
Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45

cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg 192
Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60

ccc cat cgc ccg cgc ccg cac ctc cag gga aag cat aat tcg gcg ccc 240
Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80

atg ttc atg ttg gac ctg tac aac gcc atg gcg gtg gag gag agc ggg 288
Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95

ccg gac gga cag ggc ttc tcc tac ccc tac aag gcc gtc ttc agt acc 336
Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110

cag ggc ccc cct tta gcc agc ctg cag gac agc cac ttc ctc act gac 384
Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125

gcc gac atg gtc atg agc ttc gtc aac cta gtg gaa cat gac aaa gaa 432
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
130 135 140

ttc ttc cac cct cga tac cac cat cgg gag ttc cgg ttt gat ctt tcc 480
Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
145 150 155 160

aag atc ccc gag ggc gaa cgg gtg acc gca gcc gaa ttc agg atc tat	528
Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr	
165 170 175	
aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca	576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr	
180 185 190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc	624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
195 200 205	
ttg ctg gac agc cgc acc atc tgg gct tct gag gag ggc tgg ttg gtg	672
Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val	
210 215 220	
ttt gat atc aca gcc acc agc aac cac tgg gtg gtc aac cct cgg cac	720
Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His	
225 230 235 240	
aac ctg ggc tta cag ctc tct gtg gag acc ctg gat ggg cag agc atc	768
Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile	
245 250 255	
aac ccc aag ttg gca ggc ctg att gga cgg cat gga ccc cag aac aag	816
Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys	
260 265 270	
caa ccc ttc atg gtg gcc ttc ttc aag gcc acg gaa gtc cat ctc cgt	864
Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg	
275 280 285	
agt atc cgg tcc acg ggg ggc acg cgc cag gag gag gaa tac atg ccc	912
Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Glu Glu Tyr Met Pro	
290 295 300	
atg gag acg cgt cca aag aac caa gag gcc ctg agg atg gcc agt gtg	960
Met Glu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Ser Val	
305 310 315 320	
gca gaa aac agc agc agt gac cag agg cag gcc tgc aag aaa cat gag	1008

Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
20 25 30

Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
35 40 45

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
50 55 60

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65 70 75 80

Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
85 90 95

Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
100 105 110

Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
115 120 125

Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
130 135 140

Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
145 150 155 160

Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
165 170 175

Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
180 185 190

Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
 195 200 205

Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
 210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
 225 230 235 240

Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
 245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
 260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
 275 280 285

Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Glu Glu Tyr Met Pro
 290 295 300

Met Glu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Ser Val
 305 310 315 320

Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu
 325 330 335

Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
 340 345 350

Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro
 355 360 365

Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu
 370 375 380

Val His Phe Ile Asn Pro Asp Thr Val Pro Lys Pro Cys Cys Ala Pro
 385 390 395 400

Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn
 405 410 415

Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
 420 425 430

His

<210> 13
 <211> 1352
 <212> DNA
 <213> mouse

<220>
 <221> CDS
 <222> (1)..(1305)

<400> 13
 atg cac gtg cgc tcg ctg cgc gct gcg gcg cca cac agc ttc gtg gcg 48
 Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
 1 5 10 15
 ctc tgg gcg cct ctg ttc ttg ctg cgc tcc gcc ctg gcc gat ttc agc 96
 Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
 20 25 30
 ctg gac aac gag gtg cac tcc agc ttc atc cac cgg cgc ctc cgc agc 144
 Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
 35 40 45

cag gag cgg cgg gag atg cag cgg gag atc ctg tcc atc tta ggg ttg	192
Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu	
50 55 60	
ccc cat cgc ccg cgc ccg cac ctc cag gga aag cat aat tcg gcg ccc	240
Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro	
65 70 75 80	
atg ttc atg ttg gac ctg tac aac gcc atg gcg gtg gag gag agc ggg	288
Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly	
85 90 95	
ccg gac gga cag ggc ttc tcc tac ccc tac aag gcc gtc ttc agt acc	336
Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr	
100 105 110	
cag ggc ccc cct tta gcc agc ctg cag gac agc cac ttc ctc act gac	384
Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp	
115 120 125	
gcc gac atg gtc atg agc ttc gtc aac cta gtg gaa cat gac aaa gaa	432
Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu	
130 135 140	
ttc ttc cac cct cga tac cac cat cgg gag ttc cgg ttt gat ctt tcc	480
Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser	
145 150 155 160	
aag atc ccc gag ggc gaa cgg gtg acc gca gcc gaa ttc agg atc tat	528
Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr	
165 170 175	
aag gac tac atc cgg gag cga ttt gac aac gag acc ttc cag atc aca	576
Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr	
180 185 190	
gtc tat cag gtg ctc cag gag cac tca ggc agg gag tcg gac ctc ttc	624
Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe	
195 200 205	
ttg ctg gac agc cgc acc atc tgg gct tct gag gag ggc tgg ttg gtg	672

Leu	Leu	Asp	Ser	Arg	Thr	Ile	Trp	Ala	Ser	Glu	Glu	Gly	Trp	Leu	Val		
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Phe	Asp	Ile	Thr	Ala	Thr	Ser	Asn	His	Trp	Val	Val	Asn	Pro	Arg	His		
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Asn	Leu	Gly	Leu	Gln	Leu	Ser	Val	Glu	Thr	Leu	Asp	Gly	Gln	Ser	Ile		
			245					250					255				
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Asn	Pro	Lys	Leu	Ala	Gly	Leu	Ile	Gly	Arg	His	Gly	Pro	Gln	Asn	Lys		
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caa	ccc	ttc	atg	gtg	gcc	ttc	ttc	aag	gcc	acg	gaa	gtc	cat	ctc	cgt	864	
Gln	Pro	Phe	Met	Val	Ala	Phe	Phe	Lys	Ala	Thr	Glu	Val	His	Leu	Arg		
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agt	atc	cgg	tcc	acg	ggg	ggc	acg	cgc	cag	gag	cag	aag	ctt	atc	tcg	912	
Ser	Ile	Arg	Ser	Thr	Gly	Gly	Thr	Arg	Gln	Glu	Gln	Lys	Leu	Ile	Ser		
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Glu	Glu	Asp	Leu	Thr	Arg	Pro	Lys	Asn	Gln	Glu	Ala	Leu	Arg	Met	Ala		
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agt	gtg	gca	gaa	aac	agc	agc	agt	gac	cag	agg	cag	gcc	tgc	aag	aaa	1008	
Ser	Val	Ala	Glu	Asn	Ser	Ser	Ser	Asp	Gln	Arg	Gln	Ala	Cys	Lys	Lys		
				325					330					335			
cat	gag	ctg	tac	gtc	agc	ttc	cga	gac	ctt	ggc	tgg	cag	gac	tgg	atc	1056	
His	Glu	Leu	Tyr	Val	Ser	Phe	Arg	Asp	Leu	Gly	Trp	Gln	Asp	Trp	Ile		
			340					345					350				
att	gca	cct	gaa	ggc	tat	gct	gcc	tac	tac	tgt	gag	gga	gag	tgc	gcc	1104	
Ile	Ala	Pro	Glu	Gly	Tyr	Ala	Ala	Tyr	Tyr	Cys	Glu	Gly	Glu	Cys	Ala		
		355					360					365					
ttc	cct	ctg	aac	tcc	tac	atg	aac	gcc	acc	aac	cac	gcc	atc	gtc	cag	1152	

Phe	Pro	Leu	Asn	Ser	Tyr	Met	Asn	Ala	Thr	Asn	His	Ala	Ile	Val	Gln		
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Thr	Leu	Val	His	Phe	Ile	Asn	Pro	Asp	Thr	Val	Pro	Lys	Pro	Cys	Cys		
385					390				395					400			
gcg	ccc	acc	cag	ctc	aac	gcc	atc	tct	gtc	ctc	tac	ttc	gac	gac	agc	1248	
Ala	Pro	Thr	Gln	Leu	Asn	Ala	Ile	Ser	Val	Leu	Tyr	Phe	Asp	Asp	Ser		
			405					410					415				
tct	aat	gtc	atc	ctg	aag	aag	tac	aga	aac	atg	gtg	gtc	cgg	gcc	tgt	1296	
Ser	Asn	Val	Ile	Leu	Lys	Lys	Tyr	Arg	Asn	Met	Val	Val	Arg	Ala	Cys		
			420					425					430				
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			20					25					30				
Leu	Asp	Asn	Glu	Val	His	Ser	Ser	Phe	Ile	His	Arg	Arg	Leu	Arg	Ser		
		35						40				45					
Gln	Glu	Arg	Arg	Glu	Met	Gln	Arg	Glu	Ile	Leu	Ser	Ile	Leu	Gly	Leu		
		50				55					60						

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
 65 70 75 80

Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Ser Gly
 85 90 95

Pro Asp Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser Thr
 100 105 110

Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp
 115 120 125

Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu
 130 135 140

Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser
 145 150 155 160

Lys Ile Pro Glu Gly Glu Arg Val Thr Ala Ala Glu Phe Arg Ile Tyr
 165 170 175

Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Gln Ile Thr
 180 185 190

Val Tyr Gln Val Leu Gln Glu His Ser Gly Arg Glu Ser Asp Leu Phe
 195 200 205

Leu Leu Asp Ser Arg Thr Ile Trp Ala Ser Glu Glu Gly Trp Leu Val
 210 215 220

Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg His
 225 230 235 240

Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser Ile
245 250 255

Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn Lys
260 265 270

Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Leu Arg
275 280 285

Ser Ile Arg Ser Thr Gly Gly Thr Arg Gln Glu Gln Lys Leu Ile Ser
290 295 300

Glu Glu Asp Leu Thr Arg Pro Lys Asn Gln Glu Ala Leu Arg Met Ala
305 310 315 320

Ser Val Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys
325 330 335

His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile
340 345 350

Ile Ala Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala
355 360 365

Phe Pro Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln
370 375 380

Thr Leu Val His Phe Ile Asn Pro Asp Thr Val Pro Lys Pro Cys Cys
385 390 395 400

Ala Pro Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser
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